



Customer No. 22,852
Attorney Docket No. 9179-0001-01
Application No.: 09/988,376
Reply to Office Action filed September 21, 2004

LISTING OF CLAIMS:

Please cancel claim 56-82, without prejudice or disclaimer of their subject matter, amend claims 44-47, 49, and 51-55, and add new claims 83-107, as indicated below. This listing of claims will replace all prior versions and listings of claims in the application:

Claims 1-43 (Canceled)

44. (Currently Amended) An apparatus for detecting objects on an airport runway, comprising:

a first plurality of transmitters adapted to emit incident beams and positioned adjacent to along a first side of said an airport runway;

a first plurality of receivers adapted to receive said incident beams and positioned adjacent to along a second side of said runway;

a processor operably linked to each of said first plurality of receivers; and

a user interface operably linked to said processor,

wherein each of said first plurality of transmitters is are adapted to emit a first beam of light said incident beams across at least a portion of said runway, and each of said plurality of receivers being configured to receive one of said incident beams to said first receiver,

wherein said first plurality of receivers is are adapted to indicate a first indication to said processor if any of said first beam of light incident beams is are interrupted by an object on or over said runway,

wherein said processor is adapted to send a warning second indication to said user interface in response to said first indication, said second indication being a warning indication; and

wherein said user interface is adapted to enable a user to receive an a third indication in response to said warning second indication.

45. (Currently Amended) The apparatus of claim 44, further comprising a reflector positioned adjacent to said runway,

wherein said reflector is adapted to reflect said first beam of light incident beams from said first plurality of transmitters to said first plurality of receivers.

46. (Currently Amended) The apparatus of claim 44, wherein one of said first plurality of receivers and one of said first plurality of transmitters are adapted to form a first transceiver.

47. (Currently Amended) The apparatus of claim 44, further comprising a support mechanism adapted to support each of said first plurality of receivers.

48. (Previously Presented) The apparatus of claim 47, wherein said support mechanism is adapted to present a substantially flush surface.

49. (Currently Amended) The apparatus of claim 44, further comprising a support mechanism adapted to support each of said first plurality of transmitters.

50. (Previously Presented) The apparatus of claim 49, wherein said support mechanism is adapted to present a substantially flush surface.

51. (Currently Amended) The apparatus of claim 44, further comprising a protective cover adapted to protect each of said first plurality of receivers.

52. (Currently Amended) The apparatus of claim 44, further comprising a protective cover adapted to protect each of said first plurality of transmitters.

53. (Currently Amended) The apparatus of claim 44, further comprising a heating element adapted to heat each of said first plurality of receivers.

54. (Currently Amended) The apparatus of claim 44, further comprising a heating element adapted to heat each of said first plurality of transmitters.

55. (Currently Amended) The apparatus of claim 44, further comprising:

a second transmitter positioned adjacent to said runway; and
a second receiver positioned adjacent to said runway,
wherein said processor is operably linked to said second receiver,
wherein said second transmitter is adapted to emit a second beam of light across
said runway to said second receiver,
wherein said second receiver is adapted to send a second indication to said
processor if said second beam of light is interrupted by said object on said runway, and
wherein said processor is adapted to use triangulation to locate said object on
said runway.

56- 82. (Canceled)

83. (New) An apparatus for detecting objects on an airport runway, comprising:
a plurality of transmitters adapted to emit incident beams positioned along a first
side of said runway;
a plurality of receivers adapted to receive said incident beams, said plurality of
receivers being positioned along a second side of said runway;
a processor for detecting a status of said incident beams and operably linked to
each of said plurality of receivers; and
a user interface operably linked to said processor; each of said plurality of
transmitters being adapted to emit an incident beam not substantially parallel to said
first or second sides, each of said plurality of receivers being adapted to receive said

incident beam from any one of said plurality of transmitters, each of said plurality of receivers being adapted to indicate a first indication to said processor if any of said incident beams are interrupted by an object on or over said runway, said processor being adapted to send a second indication to said user interface in response to said first indication, said second indication being a warning indication, and said user interface being adapted to enable a user to receive a third indication in response to said warning indication.

84. (New) The apparatus of claim 83, further comprising a reflector positioned adjacent to said runway, wherein said reflector is adapted to reflect said incident beams from said plurality of transmitters to said plurality of receivers.

85. (New) The apparatus of claim 83, wherein one of said plurality of receivers and one of said plurality of transmitters are adapted to form a transceiver.

86. (New) The apparatus of claim 83, further comprising a support mechanism adapted to support each of said plurality of receivers.

87. (New) The apparatus of claim 86, wherein said support mechanism is adapted to present a substantially flush surface.

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88. (New) The apparatus of claim 83, further comprising a support mechanism adapted to support each of said plurality of transmitters.

89. (New) The apparatus of claim 88, wherein said support mechanism is adapted to present a substantially flush surface.

90. (New) The apparatus of claim 83, further comprising a protective cover adapted to protect each of said plurality of receivers.

91. (New) The apparatus of claim 83, further comprising a protective cover adapted to protect each of said plurality of transmitters.

92. (New) The apparatus of claim 83, further comprising a heating element adapted to heat each of said plurality of receivers.

93. (New) The apparatus of claim 83, further comprising a heating element adapted to heat each of said plurality of transmitters.

94. (New) The apparatus of claim 83, further comprising:
wherein said processor is adapted to use triangulation to locate said object on said runway.

95. (New) An apparatus for detecting objects on an airport runway, having an axial direction and a length that is substantially longer than a width of the runway, comprising:

an array of a plurality of transmitters, each of said transmitters being adapted to emit incident beams, and disposed along a first side of said airport runway,

an array of a plurality of receivers, each of said receivers being adapted to receive said incident beams, and disposed along a second side of said airport runway opposite said first side;

each of said plurality of transmitters being associated with at least one of said plurality of receivers;

a processor for detecting a status of said incident beam, said processor being operably linked to each of said plurality of receivers, said processor including an item characterizer and an alarm generator; and

a user interface operably linked to said processor; each of said plurality of transmitters being adapted to emit an incident beam substantially transverse to said axial direction of said runway and not substantially parallel to said first or second sides; each of said plurality of receivers being adapted to receive said incident beam from any one of said plurality of transmitters and configured to provide a first indication to said processor if said incident beam is interrupted by any object that appears on said runway; said processor being adapted to triangulate to determine

said location of said object on said runway and further identify a type of said object on said runway with said item characterizer, and send a warning indication through said alarm generator to said user interface in response to said first indication; said user interface being adapted to enable a user to receive a second indication in response to said warning indication; said second indication being adapted to inform said user of a location of said object and the type of said object detected on said runway.

96. (New) The apparatus of claim 95, further comprising a reflector positioned adjacent to said runway, wherein said reflector is adapted to reflect said incident beams from said plurality of transmitters to said plurality of receivers.

97. (New) The apparatus of claim 95, wherein one of said plurality of receivers and one of said plurality of transmitters are adapted to form a transceiver.

98. (New) The apparatus of claim 95, further comprising a support mechanism adapted to support each of said plurality of receivers.

99. (New) The apparatus of claim 98, wherein said support mechanism is adapted to present a substantially flush surface.

100. (New) The apparatus of claim 95, further comprising a support mechanism adapted to support each of said plurality of transmitters.

101. (New) The apparatus of claim 100, wherein said support mechanism is adapted to present a substantially flush surface.

102. (New) The apparatus of claim 95, further comprising a protective cover adapted to protect each of said plurality of receivers.

103. (New) The apparatus of claim 95, further comprising a protective cover adapted to protect each of said plurality of transmitters.

104. (New) The apparatus of claim 95, further comprising a heating element adapted to heat each of said plurality of receivers.

105. (New) The apparatus of claim 95, further comprising a heating element adapted to heat each of said plurality of transmitters.

106. (New) A method for detecting objects on an airport runway, comprising:
transmitting incident beams from a first side of said runway to a second side of said runway, wherein the incident beams are transmitted substantially transverse to and not substantially parallel to said first or second sides;
receiving said incident beams at said second side of said runway;
detecting a status of said incident beams

outputing a first indication if any of said incident if any of said incident beams are interrupted by an object on or over said runway;

sending a second indication in response to said first indication, said second indication being a warning indication; and

enabling a user to receive a third indication in response to said warning indication, wherein the third indication informs said user of a location of said object and a type of said object.

107. (New) The method of claim 106, further comprising:

using triangulation to locate said object on said runway.